

REMARKS/ARGUMENTS

Claims 1-7 and 10-20 are pending. Claims 1, 6-7, and 10-17 have been amended. Claims 8 and 9 have been canceled. Support for the amended claims is found in the specification. No new matter has been added.

Claims 1-5 are rejected under 35 U.S.C. § 102(b) as being anticipated by Petersen (US 4,317,611).

Claims 1-5 are rejected under 35 U.S.C. § 102(e) as being anticipated by Polinsky (US 6,782,153).

Claim 6 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Petersen and Polinsky.

Claim 7 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Petersen in view of Drake (US 6,128,122) and Polinsky in view of Drake.

Claims 8-20 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Petersen in view of Hornbeck (US 5,535,047) and Polinsky in view of Hornbeck.

Claim Rejections - 35 U.S.C. § 102(b)

Claim 1 has been amended to recite "a micro mirror comprising: a mirror plate having an upper surface and a lower surface defining a mirror plate thickness; a frame coupled to the mirror plate, wherein the frame comprises a wall portion characterized by a wall height greater than the mirror plate thickness; and a hinge connected to the frame and the mirror plate for allowing the mirror plate to rotate relative to the frame about an axis defined by the hinge wherein each of the mirror plate, the frame, and the hinge are fabricated from a single continuous piece of material." Applicants respectfully submit that Petersen does not teach or suggest at least these claim elements.

Embodiments of the present invention provide "spatial light modulators (SLMs)" "with electronically addressable control circuitry for display applications." (Specification at paragraph [0002]). In an embodiment, each of "the mirror plate, the connector, the vertical hinge, the support posts, and the spacer wall is fabricated from a first substrate. The first substrate is a wafer of a single material, single crystal silicon in one embodiment."

(Specification at paragraph [0011]). A benefit provided by the claimed embodiment is that fabricating the mirror plate, the spacer support frame, and the hinges from a single continuous piece of material "greatly simplifies the fabrication of the mirror." (Specification at paragraph [0035]).

Petersen discusses an apparatus fabricated using a "substrate 10 of insulating material" and a "semiconductor plate member 20, preferably made of silicon." (Petersen at col. 3, lines 6-17). The semiconductor plate member 20 is a planar member of uniform thickness.

Petersen does not teach or suggest that "the frame comprises a wall portion characterized by a wall height greater than the mirror plate thickness." On the contrary, Petersen discusses an apparatus in which the mirror plate and the frame have the same thickness. For at least these reasons, claim 1 is allowable over the cited reference.

Claims 2-5, which depend from claim 1, are in a condition for allowance, for at least the reasons discussed in relation to claim 1; as well as for the additional limitations they recite.

Claim Rejections - 35 U.S.C. § 102(e)

Polinsky discusses "a hybrid optical device which includes a filter and a reflective surface in an optical path between at least one input and at least one output." (Polinsky at col. 1, lines 6-9). The device includes a mirror 300 and an actuator for moving the mirror. (Polinsky at col. 8, lines 12-14). "Referring to FIG. 6, the substrate 400 preferably includes a silicon wafer, further preferably includes an SOI wafer, which includes silicon layers 402 and 404 separated by a silicon dioxide layer 406." (Polinsky at col. 8, lines 36-39).

Applicants respectfully submit that Polinsky does not teach or suggest, for example, that "each of the mirror plate, the spacer support frame, and the hinge are fabricated from a single continuous piece of material." On the contrary, in figure 6, Polinsky illustrates the substrate 400 as including silicon layers 402 and 404 separated by a silicon dioxide layer 406. Thus, although "the mirror 300 is preferably manufactured from single crystal silicon," each of the mirror plate, the spacer support frame, and the hinge are not fabricated from a single continuous piece of material. (Polinsky at col. 8, lines 6-8). For at least these reasons, claims 1-5 are allowable over the cited reference.

Claim Rejections - 35 U.S.C. § 103(a)

Claims 6 and 7, which depend from claim 1, are in a condition for allowance, for at least the reasons discussed in relation to claim 1, as well as for the additional limitations they recite. Furthermore, Drake does not make up for the deficiencies of the primary references.

Claims 8 and 9 have been canceled.

Claim 17 recites "a plurality of micro-mirrors in an array, each micro-mirror in the array having at least one mirror plate with an upper surface and a lower surface defining a mirror plate thickness" and "a support frame with a plurality of support walls characterized by a wall height greater than the mirror plate thickness" among other elements. As discussed in relation to claim 1, the cited references, either taken alone or in combination, do not teach or suggest at least these claim elements.


Claims 10-16 and 18-20, which depend from claim 17, are in a condition for allowance, for at least the reasons discussed in relation to claim 17, as well as for the additional limitations they recite.

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 650-326-2400.

Respectfully submitted,


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